

Claims:

1/ A process for the preparation of polymeric absorbents useful for gelling organic liquids which comprises mixing one or more monomers with a cross-linking agent, a free radical initiator, an optional solvent, optionally in the presence of a transition metal source and subjecting the mixture so obtained to a conventional polymerisation method, removing the polymer, crushing the polymer to obtain polymer powder, washing with solvent, drying the polymer by conventional methods to remove unreacted monomers, followed by swelling in alcohols to obtain the desired product.

2 A process as claimed in claim 1 wherein the transition metal source is selected from metal, metal salts or metal complexes of cobalt, chromium, copper, manganese and iron.

3 A process as claimed in claim 2 wherein the transition metal source is selected from chromium trioxide, cobalt chloride, manganese hydroxide and ferric oxide.

~~4~~ A process as claimed in claim 1 wherein the transition metal is used in an amount between 5 ppm to 500 ppm.

~~5~~ A process as claimed in claim 4 wherein the transition metal is used in an amount between 10 ppm to 250 ppm.

6 A process as claimed in claim 1 wherein the optional solvent used for polymerisation is a polar or a non-polar solvent selected from water or an aqueous mixture of alcohols, 1,4 - dioxane, dimethyl sulfoxide and dimethyl formamide, benzene and xylene.

7 A process as claimed in claim 1 wherein the monomers used have a general formula $\text{CH}_2=\text{CH}-\text{R}_1-\text{R}_2-\text{R}_3$ wherein R_1 and R_3 are hydrophilic groups and R_2 is a / hydrophobic group.

8 A process as claimed in claim 7 wherein R_1 and R_3 , comprises individually or a combination of, amide, ester, sulfonic acid, carboxylic acid and hydroxyl functional

groups, and R₂ is chosen from one or a combination of, primary, secondary or tertiary aliphatic saturated or unsaturated hydrocarbons, aromatic hydrocarbons, or cycloaliphatic hydrocarbons selected from acrylamide or derivatives thereof as shown in the Table below:

Acrylamide derivative	
2-acrylamido 2-methylpropane sulfonic acid	
N-tertiary butylacrylamide	
N-octyl acrylamide	
Acrylic acid	
N-propylacryamide	
N-isopropylacrylamide	
Ester derivative	
2-hydroxyethylmethacrylate	
Methylacrylate	
Copolymers	2-acrylamido 2-methylpropane sulfonic acid copolymers with N-alkylacrylamides
Amino acids	
Acryloyl - 4 - aminobutyric acid	
Acryloyl - 6 - aminocaproic acid	
Acryloyl - 11, ω - amino acid	
Acryloyl L - leucine	
Acryloyl L - glycine	
Acryloyl L - proline	
Acryloyl o - alanine	
Hydroxyl group	
Polyethylene glycols	
Polyethylene oxide	

9. A process as claimed in claim 1 wherein the amount of the co-monomers in the polymerisation mixture is between 1 mole % to 99 mole %, more preferably between 9 to 91 mole %.

10. A process as claimed in claim 1 wherein the cross-linking agent is acrylic/methacrylic or styrenic in nature or mixtures thereof and have two or more unsaturations.

11. A process as claimed in claim 10 wherein the unsaturations are selected from N, N - methylene bisacrylamide, ethylene glycol dimethacrylate, ethylene glycol diacrylate, trimethylol propane triacrylate, trimethylol propane trimethylacrylate,

divinyl benzene and more preferably N, N - methylene bisacrylamide and ethylene glycol dimethacrylate.

12. A process as claimed in claim 1 wherein the mole percent of the multi-functional monomer is between 0.1 mol% and 40 mol%, preferably between 1 mol% and 30mol% and most preferably between 5 mol% and 20 mol%.

13. A process as claimed in claim 1 wherein the initiator used for thermal polymerisation is selected from azo, peroxides, hydroperoxides and persulphates, preferably form azo initiators and persulphates.

14. A process as claimed in claim 1 wherein tetramethyl ethylenediamine in an amount between 1 % to 4 % of the total feed is used as the polymerisation accelerator along with persulphate initiator in water as the solvent. *antecedent*

15. A process as claimed in claim 1 wherein the polymerisation of the polymer gel is carried out preferentially thermally between 50 to 90°C and more preferably between 50 to 70°C.

16. A process as claimed in claim 1 wherein said polymer gel is prepared in water-alcohol mixture in the composition range of 0 to 100 volume percent of alcohol, preferably between 0 to 75 volume percent alcohol.

17 A process as claimed in claim, 1 wherein the concentration of the monomer in solution is between 5 to 50 wt. percent, preferably between 5 to 20 %.